

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently Amended) An irradiation ~~Irradiation~~ cell for producing a radioisotope of interest through the irradiation of a target material by a particle beam, comprising a target body, a removable metallic insert forming ~~forming~~ comprising a cavity designed to house the target material and ~~to be closed by an irradiation window and~~ configured to be inserted in and removed from the target body, wherein said the ~~removable~~ removable metallic insert comprises at least two separate metallic parts of different materials, being composed of at least a first part ~~comprising said cavity~~ and a second part, the first part configured to provide an elongated cavity, and the second part surrounding the first part in a configuration to form a channel for guiding a cooling medium.

2. (Cancelled)

3. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim ~~[[2]]~~ 1, wherein said cell further comprises a supply means for a cooling medium and in connection with ~~said the~~ the supply means, ~~an element, called "diffuser", a diffuser device~~ surrounding said the cavity first part, said the diffuser diffuser device being arranged for guiding ~~configured to guide~~ said the cooling medium around ~~said the cavity first part, and wherein said the second part surrounds both said the cavity first part and said the diffuser, diffuser device in a manner to form a return path for said the cooling medium between said the diffuser diffuser device and said the second part.~~

4. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein the contact between ~~said~~ the first and second part is a metal-to-metal contact, and wherein ~~the sealing between said~~ the parts are sealed ~~is obtained~~ by at least one O-ring.

5. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein ~~the sealing between said~~ the first and second parts are sealed ~~is obtained~~ by a gold foil ~~present~~ between ~~said~~ the parts.

6. (Cancelled)

7. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein ~~said~~ the first and second parts are assembled together by a number of bolts.

8. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein ~~said~~ the first and second parts are assembled together by welding.

9. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein ~~said~~ the first part comprises a flat, circular and ring-shaped portion having an inner circular edge and an outer circular edge, a cylindrical portion rising perpendicularly from the inner circular edge of ~~said~~ the flat portion, and a hemispherical portion being on top of ~~said~~ the cylindrical portion, the cavity being formed inside ~~said~~ the cylindrical and hemispherical portions.

10. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 9, wherein ~~said~~ the cylindrical portion and/or ~~said~~ the hemispherical portion have a wall thickness comprised between 0.3 and 0.7 mm and/or ~~said~~ the cavity has a length of at

least 50 mm.

11. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 9, wherein ~~said~~ the second part has the form of a hollow cylinder having two flat sides essentially perpendicular to a cylindrical side, ~~said~~ the cylinder being connected by one flat side against the flat portion of ~~said~~ the first part.

12. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim ~~[[1]]~~ 9, wherein one of ~~said~~ the two parts has a ridge and the other has a groove corresponding to ~~said~~ the ridge, in order to obtain perfect coaxial positioning of ~~said~~ the two parts with respect to each other.

13. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1, wherein ~~said~~ the first part is made of niobium or tantalum.

14. (Currently Amended) The irradiation ~~Irradiation~~ cell according to claim 1 ~~[[6]]~~, wherein ~~said~~ the second part is made of stainless steel.

15-16. (Cancelled)

17. (Currently Amended) ~~Method~~ A method for filling the cavity volume with about 50% of target material, before starting irradiation by using an irradiation cell according to claim 1.

18-19. (Cancelled)

20. (New) The irradiation cell according to claim 1, wherein the cell further comprises a supply tube for a cooling medium and, in connection with the supply tube, a diffuser device mounted on one end of the supply tube, the diffuser device surrounding the first part, the diffuser element being configured to guide the cooling medium around the first part, and wherein the second part surrounds both the first part and the diffuser element in a manner to form a return path for the cooling medium between the diffuser element and the second part.